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INFORMATION REPORT

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COUNTRY Germany (Russian Zone)

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SUBJECT Production of Fine Nickel and Phosphor-Bronze Wire at the Walzwerk fuer Buntmetalle Hettstedt

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SUPPLEMENT TO REPORT NO. 25X1X

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1. One of the topics under discussion at a meeting, which reportedly took place at Tewa-Neustadt at the [redacted] under the chairmanship of Pryodko, was the quality of the nickel wire screen produced. Representatives of both the Walzwerk fuer Buntmetalle Hettstedt, producers of the nickel wire, and Tewa-Neustadt, producers of the wire screen, argued over the causes for low quality screen. The latter ascribed flaws in the screen to flaws in the wire, but the Hettstedt representatives succeeded in proving that the wire produced there was of good quality and that poor quality screen was caused by inexpert handling of the wire during the weaving process. 25X1A

2. The Tewa-Neustadt representatives complained that the wire from Hettstedt was sometimes of two different diameters since both warp and woof wire were knotted together on the same spool. The Hettstedt men pointed out that this was unavoidable so long as each spool had to have a prescribed amount of wire (90 or 150 grams). Since only the loose end of a spool of wire is examined, the knotting together of wires of different diameters could occur without being noticed. It was therefore agreed upon at the meeting that, in the future, all spools should be free from knots, even though some of the spools would thus be under the prescribed weight.

3. The main difficulty encountered at the beginning of the nickel wire screen program (presumably 1948) was the poor quality of the pre-drawn nickel wire which, it is believed, came from the Soviet Union. This wire contained too much sulphur. At that time, the Hettstedt plant did only the fine drawing. Later, the plant started doing its own pouring, rolling and pre-drawing in order to produce wire of the desired quality.

4. During this second phase of the program, the main difficulties consisted of finding, by trial and error, the correct pouring, rolling and annealing temperatures, determining the number of drawings needed to produce wire of a certain diameter and determining the correct chemical composition for the best wire.

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[redacted]

5. The wire is drawn from electrode nickel which comes from Russia, but is believed to originate in the West. For a time, nickel of even poorer quality than that usually received arrived at the Hettstedt plant. This nickel may have been of Russian origin.

6. Until sometime in 1950, all raw nickel was poured into cylinders about 10 cm. in diameter and between 40 and 45 cm. in length. This was carried out by using the induction furnace in the laboratory of the Hettstedt plant. The capacity of this furnace was one cylinder. Later, when production increased, one of the furnaces in the plant's foundry was used for the same purpose. This furnace has a six-cylinder capacity. The weight of each cylinder has been reported as 35 kg. Laboratory personnel are supposed to be present when nickel is poured, but when the pouring is done at the foundry, the work is often done by foundry personnel. Nickel is rolled once a week, at which time three tons are rolled in from one and one-half to two hours. Pre-drawing takes about four hours. Fine drawing is carried out in three consecutive eight-hour shifts with the aid of from twelve to eighteen fine-drawing machines.

7. The rolling mill has been a part of the plant since its foundation in 1911 and was constructed by the former Benrath machine factory which is now a part of Demag. The rolling equipment has deteriorated with age and from the lack of any important improvement. The four lathes used for turning the cylinders (Rohlinge) are also very old and often fail. These lathes have a center height (Spitzenhoehe) of about 25 cm. The annealing furnaces (Durchlaufgluehoefen), built by Siemens-Plania according to specifications set by Hettstedt plant engineers, are electrically-operated and have an effective annealing length for a two-meter section of wire.

8. Before the nickel is poured into a cylinder, it is analyzed for carbon content. Should the carbon content be excessive or insufficient, carbon is either removed by burning or added to the nickel. Test samples of the molten nickel are removed with a ladle shortly before pouring. These samples go to the laboratory, where they are examined spectrographically, and by other unspecified means, mainly for carbon, sulphur and lead content. Removal of excessive amounts of sulphur and lead is done by passing hydrogen over the molten nickel at temperatures ranging from 1,000 to 1,050° C.

9. The Hettstedt plant reportedly produces three tons of nickel wire per week, i.e. six working days of three shifts each. The plant sometimes operates on Sundays and holidays also. The plant also uses nickel as base material for an average of two to three tons per month of other products besides fine wire. Some of these are: nickel wire for the radio industry, nickel electrodes, nickel tubing and bands, and nickel equipment for storage batteries. This type of production has sometimes been as high as six or eight tons in one month, because of increased demands from radio and electrical equipment plants, such as AEG.

10. It was expected that the November 1951 output of nickel goods other than fine wire would reach between six and eight tons. Three tons of tubing and bands, as well as 600 to 800 kg. of nickel wire, both part of the November 1951 output, were to go to AEG Berlin. As far as can be ascertained, no part of the nickel products, other than fine wire, goes to the Russians, nor is it known whether or not the raw nickel used for these other products has the same origin as the fine wire nickel.

11. Drawing dies are the most critical items in fine nickel wire production. In order to reduce wear, the Hettstedt plant is now using the wet-drawing process in all stages of drawing, whereas this process was formerly used only in the initial stages, until a certain unspecified caliber had been reached. In other production fields, the plant is experiencing difficulty in procuring pure iron for the manufacture of magnetic equipment.

25X1A 12. [redacted] the rolling of nickel could be done at the Kabelwerk Oberspree. The Hennigsdorf and Kirchmoeser rolling mills could also roll nickel if they refitted their equipment, which is now used for iron rolling. An unidentified plant in Aue could also take over nickel drawing, on a much smaller scale than the Hettstedt plant, however.

13. The present Russian director of the Hettstedt plant is (fnu) Kayakov. The technical director, apparently a steel and iron expert, is (fnu) Kyrillov.

14. As of September 1951, phosphor-bronze wire was being produced at Hettstedt for the paper industry. In October, however, production of this wire was secretly transferred to the fine-drawing department. The plant now manufactures phosphor-bronze wire having a diameter of 0.04 mm., 14 to 16 per cent stretchability and a tensile strength of 38 to 55 kg.**

15. The base material for phosphor-bronze wire is produced in the plant. It contains 0.2 to 0.4 per cent phosphorus and 6 to 7 per cent tin; the remainder is copper.

25X1A [redacted] the plant produces one ton of phosphor-bronze wire for every three tons of fine nickel wire. This would simply mean a weekly production of one ton of phosphor-bronze wire, unless there were some cryptic meaning to the comparison. Another source states that the comparison might have been made to stress a close connection between the production of both kinds of wire, i.e., possibly a common purpose, which might necessitate the use of both kinds in a ratio of one to three. At any rate, both kinds of wire are subject to the same rigid specifications, testing for thickness with the Zeiss optometer device, and security regulations. The finished phosphor-bronze wire is delivered personally to the Russian acceptance engineer who also receives the fine nickel wire. It is also known that the phosphor-bronze wire is shipped to Pewa-Neustadt.

25X1A 16. [redacted] aluminum wire is not and never has been produced at the Hettstedt plant. There is some production of copper wire, but of course caliber only.

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* [redacted] Comment: This seems a little high. Pure nickel has a specific gravity of 8.9, and since the nickel used for the cylinder contains impurities of lighter weight, the weight of each cylinder should be 30 kg. at the most.

** [redacted] Comment: The denominator for this term is not given. Obviously, it
25X1A cannot apply to wire of 0.04-mm. diameter.